

members of any series of multiple allelomorphs, excepting only that which occurs in nature—to which each of the others is usually completely recessive—strongly suggests the conclusion that dominance has been attained in combinations of which the species has experience, but not in those which, in all probability, have never occurred before. For the chances that two of the rare mutant members of a series of multiple allelomorphs should come together in natural conditions are exceedingly remote.

These considerations are here amplified, and a valuable summary of the relation between dominance and polymorphism has been added. The paper ends with the clearest account so far given of the important association between close-linkage, polymorphism, and dominance in the grouse-locusts (*Paratettix* and *Apotettix*), the fish *Lebistes*, and the land snails *Helix hortensis* and *H. nemoralis*. The discussion of the limitations imposed upon evolutionary improvement by close linkage will be found especially illuminating. For this brings out in a novel way the well-known immense superiority of bi-sexual reproduction, and indicates how the handicaps of the asexual method may be approached by sexual organisms whose germ-plasm is bound into a few closely-linked groups.

A comprehensive summary of this subject has been much needed. It is a matter for satisfaction that it has been undertaken by Dr. Fisher, who has himself been responsible for the development of the dominance theory. It is now presented in a form which makes it readily accessible to all students.

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HUMAN GENIUS

Terman, Professor Lewis M. (Editor). *Genetic Studies of Genius. Vol. III, The Promise of Youth* (Follow-up Studies of a Thousand Gifted Children). London & California, 1930. Harrap & Stanford University Press. Pp. v-xiv+3-508. Price 21s.

Lange-Eichbaum, W. *The Problem of Genius* (Tr. by Eden & Cedar Paul). London, 1931. Kegan Paul. Pp. v-xix+1-187. Price 8s. 6d.

THE book edited by Terman is the third in a series of studies purporting to deal with the genetics of genius. In the present volume the title is misleading, and the reader who is interested in the problem of genius from the genetic aspect will be disappointed. There are no family histories given and such facts as are recorded about the other members of the families of gifted children are too scanty to be termed a genetic study.

The main purpose of the volume, which is the investigation of the life histories of children with high intelligence quotients, has been carried out with great labour and considerable care, assisted by a grant from the Commonwealth Fund. For the most part the information about these children was obtained by an elaborate system of schedules, including "Home Information Blank" (four pages) for parents of all children up to and including age 19, "Interest Blank," "Trait-rating Blank," "Supplementary Blank" for married persons, etc. The homes were visited and a conference held with the teacher and with the child in certain cases.

The book is divided into three parts, the first of which deals with methods and results. What appears to be the most important section of this study deals with the variation of intelligence quotient at different ages in the same subject. The Stanford-Binet scale was invariably used. It appears that variations of about 10 per cent. are not unusual in the course of a year or two, but few large fluctuations were noticed even among very highly gifted children. The authors attempted to correlate downward changes in I.Q. with such external factors as changing home conditions or illness, but were unable to trace any such influences and they conclude that, since the I.Q.s of females are more likely to drop than the I.Q.s of males, fluctuations in intelligence

must usually be due to differences in mental growth rate.

By use of the trait-rating and interest blanks, it is found that gifted boys are not significantly more effeminate than ordinary high school boys, but gifted girls are found to be distinctly more masculine than their normal control group. An enormous number of points of this kind are brought out concerning the social and personal adjustments of gifted children but, when one considers the methods by which the data are collected, it seems doubtful whether much importance can be attached to them. Let us examine one of the twelve trait-rating blanks to be filled in by parents or teachers. Trait No. 8 is Conscientiousness, and a linear scale is provided which is marked from left to right as follows :

Extraordinarily conscientious, keen sense of duty, does right for right's sake, etc. ;
Decidedly more conscientious than average ;
Rather more conscientious than average ;
Average for age ;
Rather less conscientious than average ;
Decidedly less conscientious than average ;
Extreme lack of conscientiousness, no sense of duty, does wrong for any advantage, etc.

The parent or teacher is directed to make a small cross somewhere on the line to show how much of the trait the subject possesses, and is asked to say whether the judgment on the given trait is very certain, fairly certain, rather uncertain, or very uncertain.

Concerning family statistics an important point which emerges is that the I.Q.s of the brothers and sisters of gifted children are, on the average, considerably higher than normal. The bare fact that 3.7 per cent. of their parents have been separated or divorced does not seem to be of the same relevance. A large proportion of the children come from the professional classes, but we get no indication as to how far this fact is of genetic significance.

The second part of the book deals with case studies. Here are two examples. The star turn is Madeline, who, at the age of 6½, had an I.Q. of 192. Her health has always been good and she is said to be

pleasant in appearance. She is, however, very slow and deliberate in her actions and has a tendency towards procrastination. She lingers over her dish-washing and other duties, apparently because, at the age of 12, she is planning to become an astronomer. Naturally, the Stanford-Binet scale, at which she gets full marks, cannot be applied to test her intelligence at this age. Madeline's heredity, we are told, is decidedly superior. For at least two or three generations on each side the ancestors were American born. The parents are both university graduates and two younger sisters have I.Q.s of 167 and 162.

Not every gifted child, it is found, does well academically. The history of Edwin, whose I.Q. was 141, is indeed a sad one. Eight failures were recorded against him, four in Latin, two in geometry, one in American literature, and one in hygiene. He frequently wept, his only explanation being that he did not like study. The baffled parents reproved him gently and denounced him sternly but with little success. Mere laziness was the explanation offered by his teachers, while the parents thought he had too many friends; the physicians, however, attributed his school failure to glandular disturbance.

The third part of the book concerns the comparison of poetry written by gifted American children with that of the best writers in the English language. Poems and stories were submitted to various judges and rated. Beatrice, at the age of 7, it was discovered, wrote better than Macaulay at the age of 8; while Edith, at the age of 16, beat Johnson and Wordsworth at the same age. The collection of these juvenalia gives opportunity for making interesting comparisons, but different people will draw different conclusions. It is a pity that the authors did not have the opportunity to present Johnson and Macaulay with the same questionnaire which the precocious American children filled up. One wonders very much what the answers would have been to such questions as these :

Name all the offices or honours you have held during the last five years (Ex-

amples: class officer, scout officer, club officer, actor in plays, scholarship prize or honour, member of band, orchestra, debating team); What have you made or constructed yourself during the last four or five years? (Examples: built a canoe, made dresses, etc.)

Turning to Lange-Eichbaum's essay, we encounter an entirely different attitude towards the problem of genius. Here is a clear, cold, almost cynical study which sets out to make a scientific analysis of genius. Actually, it is a discussion as to what is meant when someone is declared to be a genius. It is, therefore, a philosophical study in the sense that it examines the proposition, *this person is a genius*, in order to find out what it means or, indeed, if it means anything. The author at once points out that the concept is relative to epoch and to place. He might also have pointed out that talent (which he regards as absolute) is also relative in the same way. Although he does not mention intelligence quotients, it is clear that he would not regard unusual success in the Stanford-Binet tests as evidence of genius. He pulls to pieces relentlessly any idea of fame, creativity, or leadership as criteria. No one, he says, is born a genius, and he pours scorn on the idea of the "mute, inglorious Milton." The net result is to show that estimates of genius are nearly always mistaken. We are dependent on the false valuation of our predecessors. For example, an exceptional way of dying is apt to increase fame disproportionately. Many people become famous for the wrong reason. For instance, he says that Swift is famous as a writer of a tale for children. Genius is, in fact, not a property of the person only but also a function of various social and subjective values.

In discussing the relationship of genius to insanity the same sceptical attitude is maintained. After expounding some elementary psychiatry, Lange-Eichbaum states that 12 to 13 per cent. of geniuses are mad as compared with 0.5 per cent. of the general population. He explains this simply

by pointing out that talent, when accompanied by psychopathic phenomena, is attractive. Thus, the mentally disordered are more likely to become famous than the normal. On this point, in my opinion, he fails to establish his case. He gives no explanation why mad people are so attractive.

The aim of the book is to introduce the reader to the author's larger work, *Genie, Irrsinn und Ruhm*. The translation is efficient.

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NATURAL INCREASE

League of Nations. *Monthly Epidemiological Report of the Health Section of the Secretariat.* Tenth Year. No. XI. Nov. 15th, 1931.

Natural increase in the population of several countries since the beginning of the twentieth century.—This important article, with tables, is given in both French and English, and the inquiry covers about one-third of the world's population, estimated at about 2,000,000,000.

The first table gives the birth and death rates and natural increase in various countries from 1901 to 1930 (rates per 1,000 of the population). The second table gives the differences between the birth and death rates of 1928-9 and those of 1901-5, the countries being placed in order of fall. Germany, Austria, and England head the list, and Ireland, Portugal, and Japan foot it, Japan actually showing an increase. In Germany the absolute decline is 40 times as great as in Portugal, and five times as great as in France.

The greatest decrease in mortality rates is observable in Russia, Ukraine, Spain, Germany, Hungary, and Austria. Italy nearly compensates for the decline by its birth rate, and the birth rates of other countries, such as Hungary, the Netherlands, and France largely balance its effect. On the other hand, in England, Norway, Sweden, Denmark, Scotland, Switzerland, Belgium, and New Zealand the mortality